
Session 1.6 Remote Sensing, Land-use, and Scaling

15. Poster Presentation

Title: Disentangling factors of landscape changes in Burkina Faso, the nexus between spatial modelling and remote sensing

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Abstract: Rural areas of West Burkina Faso have seen notable transformations these last two decades due to high population growth and farming systems evolution. Satellite images acquired frequently and covering large areas are essential for detecting such landscape changes and long term trends. However, these images generally have coarse spatial resolutions and can only provide information about changes in the main vegetation patterns. The factors causing these changes are more difficult to determine, although there are essential for monitoring landscape evolution.

We hereby present a method based on multi-scalar modelling of past landscape dynamics crossed with changes in vegetation trends identified from coarse resolution satellite images. The aim of our presentation is to use the model to simulate and illustrate how land cover and land use changes may impact vegetation response by improving the qualification and understanding of the observed trends.

The cropping systems dynamics of the study area, the Tuy province of West Burkina Faso, were modelled with the Ocelet Modelling Platform over the last fifteen years through a multi-scalar model. The model was validated at local scale with information derived from high resolution images. At the same time, vegetation trends were analysed using Ordinary Least Square regressions based on MODIS NDVI time series. Simulated cropland change maps were then used to decompose the remote sensing-based trends. This allowed the spatial identification of factors responsible for the vegetation changes. The original approach we proposed here opens new opportunities for the understanding and monitoring of landscape changes using time series of coarse resolution satellite images.

16. Poster Presentation

Title: Determination of leaf area index and biomass value in the wheat fields with different method approaches using the remote sensing, LAI measuring device and manuel measuring

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Abstract: Population growth that restricts arable land in the world has increased the need for effective and efficient farming practices. Sustainable agriculture will be achieved in case of Fields that based on different user may be categorized and can be used. Knowing physiological properties of plant is an important issue to sustain agricultural activities and have high crop yields.

Monitoring of wheat growth period carefully, besides to provide a more accurate determination of pesticides and fertilizers application time, helps to make yield estimation. The light utilization rate of leaves that is the organ where generate the majority of photosynthesis and the yield is closely related to leaf area index (LAI). LAI which vary according to species and varieties of plants is also varies during the vegetation period.

In this study, wheat samples that taken unit per area and selected in the 4 different Fields in the Islahiye and Nurdagi regions is calculated manually LAI and also is weighed and recorded biomass values. Secondly LAI values that measured in the same areas and used LAI meter were recorded. Biomass and LAI calculated from NDVI that is found from remote sensing image in the same period were determined. Finally with the comparison all of this processes accuracy tests of the LAI and biomass values were made.

Key Words: Crop Yield, Leaf Area Index(LAI), NDVI, Biomass